

CLAIMS

Now, therefore, the following is claimed:

- 1 1. A device testing system comprising;
2 automated test equipment (ATE) configured to interface to a device under test
3 (DUT); and
4 logic configured to select a test set of data comprising a plurality of test pairs,
5 the test pairs indicative of DUT parameter values, the logic further configured to
6 select a subset of the plurality of test pairs from the test set of data and to test the DUT
7 via the ATE with a portion of the selected subset based upon a test result of at least
8 one of the test pairs.

- 1 2. The system of claim 1, wherein the test set of data comprises test pairs
2 indicative of operational parameters corresponding to the DUT.

- 1 3. The system of claim 2, wherein the subset of test pairs selected from the test
2 set of test pairs is a cross shmoo.

- 1 4. The system of claim 3, wherein the cross shmoo comprises a first leg, a second
2 leg, a third leg, and a fourth leg, and wherein the logic is further configured to
3 determine a first test result indicative of a first endpoint of the first leg and a second
4 test result indicative of a second endpoint opposite the first endpoint, the logic further
5 configured to calculate a transition point between the first endpoint and the second
6 endpoint if the first test result and the second test result exhibit different values.

1 5. The system of claim 4, wherein the logic is further configured to calculate the
2 transition point between the first and second endpoint by performing a binary search.

1 6. The system of claim 5, wherein the logic is further configured to determine a
2 second transition point corresponding to the second leg, a third transition point
3 corresponding to the third leg, and a fourth transition point corresponding to the fourth
4 leg.

1 7. The system of claim 6, wherein the logic is further configured to predict a
2 plurality of undetermined test results corresponding to at least a portion of the
3 plurality of test pairs of the test set.

1 8. A device testing method, comprising the steps of:
2 selecting a test set of data comprising a plurality of test pairs, the test pairs
3 indicative of device-under-test parameter values;
4 selecting a subset of test pairs from the plurality of test pairs; and
5 testing the device-under-test via automated test equipment with a portion of
6 the selected subset based upon a test result of at least one of the test pairs.

1 9. The method of claim 8, wherein the test set of data comprises test pairs
2 indicative of operational parameters corresponding to the device-under-test.

1 10. The method of claim 9, wherein the subset of test pairs selected from the test
2 set of test pairs is a cross shmoo.

1 11. The method of claim 10, wherein the cross shmoo comprises a first leg, a
2 second leg, a third leg, and a fourth leg.

1 12. The method of claim 11, further comprising:
2 determining a first test result indicative of a first endpoint of the first leg and a
3 second test result indicative of a second endpoint opposite the first endpoint;
4 calculating a first transition point between the first endpoint and the second
5 endpoint if the first test result and the second test result exhibit different values.

1 13. The method of claim 12, wherein the calculating step further comprises the
2 step of performing a binary search to determine the first transition point between the
3 first and second endpoints.

1 14. The method of claim 13, further comprising the steps of:
2 determining a second transition point between the first endpoint of the second
3 leg and the second endpoint of the second leg;
4 determining a third transition point between the first endpoint of the third leg
5 and the second endpoint of the third leg; and
6 determining a fourth transition point between the first endpoint of the fourth
7 leg and the second endpoint of the fourth leg.

1 15. The method of claim 14, further comprising the step of predicting a portion of
2 the test results for the plurality of test pairs within the test set based upon the first,
3 second, third and fourth transition points.

1 16. The method of claim 15, wherein the predicting step comprises interpolating
2 the transition points over the test set.

1 17. A device testing system, comprising:
2 automated testing equipment (ATE) interfaced to a device-under-test (DUT);
3 means for selecting a subset of a test set of test pairs for transmitting to the
4 ATE for testing of the DUT;
5 means for testing the DUT with a portion of the subset of test pairs; and
6 means for predicting the test results for the test set of test pairs based upon a
7 subset of test results obtained from testing a portion of the subset.

1 18. A computer program for testing a device, the computer program being embodied
2 on a computer-readable medium, the program comprising:
3 logic configured to select a test set of data comprising a plurality of test pairs,
4 the test pairs indicative of device-under-test parameter values;
5 logic configured to select a subset of test pairs from the plurality of test pairs;
6 and
7 logic configured to test the device-under-test via the automated testing
8 equipment with a portion of the selected subset based upon the test results of at least
9 one of the test pairs.

- 1 19. The computer program of claim 18, further comprising:
 - 2 logic configured to predict test results for a portion of the plurality of test pairs
 - 3 of the test set; and
 - 4 logic configured to display a plot indicative of the test results obtained by the
 - 5 logic configured to test and the logic configured to predict.